

Department of Administration



200 South President Street
Post Office Box 17
Jackson, Mississippi 39205-0017

May 12, 2022

NOTICE TO DEALERS IN WATER TREATING CHEMICALS:

DUE DATE & WHERE

Sealed, signed bids are invited and will be received by the City of Jackson, Mississippi, until 3:30 P.M. in the City Clerk's Office. **The bid must be stamped in by 3:30 P.M., Tuesday, June 07, 2022** at which time said bids, will be publicly opened at the City Hall located at 219 S. President Street, Jackson, MS 39201 for the following:

Twenty-Four-Month Supply of Carbon Dioxide

Term: July 01, 2022 through June 30, 2024

See attached Specifications/Descriptions

SPECIFICATION QUESTIONS

For additional information regarding specifications contact: Mary D Carter, Deputy Director of Water Plant Operation, Department of Public Works at (601) 960-1196 or (601)624-5911.

EBO REQUIRED

The City of Jackson is committed to the principle of non-discrimination in Public Purchasing. It is the policy of the City of Jackson to promote full and equal business opportunities for all persons doing business with the City. As a pre-condition to selection, each contractor, bidder or offer shall submit a completed and signed Equal Business Opportunity (EBO) Plan Application, with each bid submission in accordance with the provisions set forth by the authority of the City of Jackson's EBO Ordinance. Failure to comply with the City's EBO Ordinance shall disqualify a contractor, bidder or offer, from being awarded an eligible contract. For more information on the City EBO Program, please contact the Office of Economic Development at (601) 960-1638. Copies of the EBO Ordinance, EBO Plan Application and a copy of the EBO Program are available with the Office of Economic Development at 200 South President Street, Second Floor, and Jackson, Mississippi.

BID PACKAGE REQUEST

Bid Package with specifications may be secured from the City of Jackson's website at www.jacksonms.gov, or the Purchasing Division located in the Warren Hood Building, 200 S. President St., Room 604, Jackson, MS 39201, Phone no. (601) 960-1025.

SUBMITTING A BID AND NOTES

2. **Your completed and signed proposal pricing section must be returned along with all required/mandatory documents:** e.g. (bids with multiple sections, parts, pages and/or a check list).
3. Your bid price(s) must be submitted on the proposal form provided by the City unless otherwise instructed
4. Do not return the instruction and specification section with your proposal forms. Retain these documents for your files. (Only return, required warranty, detail check-off list and equipment documents.)
5. Proposal Forms must be legibly handwritten or typed; if not, they will be considered non-responsive. All errors or corrections must be crossed out and changes must be printed in ink or typewritten. All changes must be initialed in ink by the representative signing the bid.
6. The unit price will always govern in determining the extended price or the total. **Please, review your price(s) carefully before submitting your bid.** No bid shall be altered or amended after the specified time for bid opening or once delivered.
7. **The (manufacturer's name) and (model number) must be stated when required for each item.** Any item without this information may not be considered.

ALTERNATIVE BIDS AND NOTES

8. Alternate bids are not acceptable, unless submitted in a separate sealed envelope. Do not submit prices for more than one product or the same product per item. Only one product, size and price per bid item as specified in the bid package.
9. Alternate bids may be submitted but not necessarily accepted by the City. The City reserves the right to determine whether an alternative bid offered is equivalent to and meets the standards and/or specifications stated. **Alternative bids must be submitted on the bid proposal form furnished by the City of Jackson, (include any additional required copies).** Otherwise, the bids will not be considered.
10. **Any bid received with limiting or conditional requirements will automatically be deemed non-responsive.**

Example:
 1. All or none
 2. All items must be ordered at the same time.
 3. Specified amount to be ordered.
 4. No notation or other packaging pricing below the submitted price.
11. Bid openings will be conducted and open to the public. However, they will serve only for the opening and reading of the bid price and in no way considered as an award.

WHERE TO SEND BID AND NOTES

12. Please send three (3) signed copies: one (1) original and two (2) copies in a sealed envelope addressed to: City Clerk's Office of Jackson P. O. Box 17, Jackson, MS 39205 or hand delivered to the City Clerk's Office of Jackson, 219 South President Street, Jackson, MS 39201 until 3:30 P.M. per the above instructions.

13. Only One (1) complete bid submission allowed per delivery envelope, if more than one bid proposal is submitted per a delivery envelope, it will not be accepted as an official bid.
14. As required, write on the outside of the delivery envelope the (entire bid number) and (return address.)
15. Facsimile transmitted bids or other documents are not acceptable.

EMPLOYEE BIDDING

16. It is illegal for any City official, employee and/or immediate family member to serve as a vendor for the City of Jackson. Bidding by city employees is prohibited. It is hereby declared unlawful for any city official to: bid on, sell, or offer for sale any merchandise, services, equipment, material, or similar commodity, during the tenure of his or her employment, or for the period prescribed by law thereafter, or to have any interest in the selling of the same to the City of Jackson. (§ 25-4-105) (Miss Code 1972 as amended)

SUBMITTING A NO BID

17. Submit only one (1) proposal form indicate: "**No Bid**", **(Company's Name/Address)** and **(Sign)**.
18. As required, on the outside of the deliver envelope indicate: **(No Bid)** and **(Entire Bid Number)**. All "**No Bids**" should be submitted on the same scheduled opening date and time to be recorded with all other bids.

CITY OF JACKSON RIGHTS

19. The City reserves the right to waive any general, special conditions and/or minor specification deviation when considered to be in the best interest of the City of Jackson, providing such waiver is not given so as to deliberately favor any single vendor and would have the same effect on all vendors.
The City reserves the right to reject any and all bids. The City reserves the right to waive any and all informalities in respect to any bid submitted. **Bid awards will be made to the lowest and best bidder quoting the lowest net price in accordance with specifications. The award could be according to the lowest cost per item or to the lowest total cost for all items; or to accept all or part of any proposal.** Where it is known prior to advertising that the City's intention is to award according to the lowest total cost for all items, or in some variation thereof, this statement will be included on the proposal form. Absence of such statements means the City will make that determination during the bid tabulation. Delivery time may be considered when evaluating the bid proposal.

VENDOR BID AGREEMENT

20. **One-time bid awards:** must be valid for a minimum of 60 days from the bid opening date.
21. **Term bid awards:** must be valid for the duration of the terms defined in the proposal for each bid. Vendors may not withdraw a bid prior to the end of 60 days or the stated terms of said bid. Vendors who do not comply with this requirement shall be considered non-responsive.

By signing this bid proposal, the vendor agrees to hold the submitted bid price firm for the term of the bid stated. Only if it applies, the vendor understands the estimated quantity stated and amount to be ordered may be over or below the estimated usage stated in the bid. This is not in any way a guaranteed amount to be ordered. A purchase order will be issued by the Purchasing Division for the requested quantity to be ordered from the using department

The vendor should understand their failure to stand behind the agreement could cause a statement of failure to perform to be placed in the company's file and/or the company to be placed on hold with the City of Jackson or the agreement of award to be cancelled. By signing the bid, you understand and agree to all the terms of the bid.

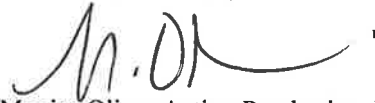
DELIVERY & OTHER COST

This order is to be delivered F.O.B., prepaid and allowed, Jackson, Mississippi, within the Number of days stated after the receipt of our purchase order. "Note, all cost must be Included in the bid price." No additional cost can be attached to a bid order.

TAXES

SALES TAX AND FEDERAL EXCISE TAX ARE NOT TO BE INCLUDED IN ANY BID PRICE. THE CITY OF JACKSON ASSUMES NO TAX LIABILITY.

CITY OF JACKSON, MISSISSIPPI

A handwritten signature in black ink, appearing to read 'M. Oliver', is written over the printed name.

Monica Oliver Acting Purchasing, Manager
Purchasing Division

MO/ES
88508

CITY OF JACKSON, MISSISSIPPI
PROPOSAL FORM

PLEASE RETURN THIS SECTION IN ITS ENTIRETY

NOTICE TO BIDDERS:

FOR DELIVERY OR MAILING INSTRUCTIONS:

1. Submit one (1) original and two (2) copies of your Bid Package.
2. MAILING ADDRESS: City Clerk's Office of Jackson
Post Office Box 17
Jackson, MS 39205
3. DELIVERY ADDRESS: City Clerk's Office of Jackson
219 South President Street
Jackson, MS 39201
4. CENTRALBIDDING www.centralbidding.com
5. Note the following on the outside of your bid envelope:
Bid No. 88508-060722; to be opened June 07, 2022

In accordance with your Notice of May 12th & 19th 2022, I bid as follows:

Twenty-Four Month Supply of Carbon Dioxide

Term: July 01, 2022 through June 30, 2024

COMPANY NAME _____		
<u>ITEM</u>	<u>DESCRIPTION</u>	<u>WET WEIGHT UNIT PRICE PER POUND</u>
1.	Carbon Dioxide Mfg. Name/Model: _____	\$ _____

The above shall comply with the specifications included in the Notice to Dealers, with any and all exceptions noted in a separate document.

Do not submit prices for more than one product, or the same product per item. Alternate bids are not acceptable, unless submitted in a separate sealed envelope.

This bid must be valid for 60 days after bid opening. If this bid is good for longer than 60 days, then state how long this bid is good for _____.

The above will be delivered F.O.B., prepaid and allowed, Jackson, Mississippi, within _____ days after receipt of your purchase order.

**SALES TAX AND FEDERAL EXCISE TAX ARE NOT TO BE INCLUDED IN ABOVE PRICE.
THE CITY OF JACKSON ASSUMES NO TAX LIABILITY**

**BID SUBMITTED BY:
PLEASE TYPE OR PRINT**

**Complete Legal Name
Of Bidder:** _____

**Mailing
Address:** _____

City: _____ **State:** _____ **Zip Code:** _____

Physical Address, Principal Place of Business: _____

City: _____ **State:** _____ **Zip Code:** _____

Name of Person Submitting Proposal: _____

Signature of Person Submitting Proposal: _____
(Required)

Date: _____, 2022 **E-Mail Address:** _____

Telephone No.: _____ / _____ **Fax No.:** _____ / _____

****The (EBO) Application form must be completed by all vendors and returned with ALL bids. The EBO staff is available at, (601) 960-1856 to assist you with any questions you may have in preparing the EBO Application.**



CAL~FLO[®] Lime Slurry

Technical Data Sheet

Typical Chemical Analysis

Suspended Solids	30%
Ca(OH) ₂	> 29.5%
MgO	.12%
Crystalline Silica / Insolubles (Dry Basis)	< .20%
Fe ₂ O ₃	.02%
Al ₂ O ₃	.20%
Sulfur	72 ppm
Manganese Oxide	8 ppm
Chloride as NaCl	16 ppm
Specific Gravity	1.19 – 1.23 g/ml 10.0 – 10.1 lbs./gal

CHEMICAL ANALYSIS:

Calcium Hydroxide % by weight
Inert Ingredients, % by weight
pH of saturated solution

SPECIFICATIONS:

30.0 min. max. aqueous suspension
70.0 max.
12.4 @ 25C

PHYSICAL PROPERTIES:

Appearance and odor
Solubility in water
Median Particle size target

White suspension and odorless
0.1gm/100gms
2 - 25 microns

Must meet NSF/ANSI standard 60, AWWA standards and be approved for potable water.

EXPLANATIONS:

- The Supplier shall certify no quicklime is used in the slurry manufacturing process and only finely ground air-classified hydrated lime for preparation of the slurry product.
- CAL~FLO[®] Slurry has low crystalline silica.
- Slurry product must be NSF/ANSI/CAN standard 60 certified. Delivery tankers shall be solely used for shipping slurry and equipped with a system to avoid spillage during the off-loading.

SECTION 1: IDENTIFICATION

Product Identifier

Product Form: Mixture

Product Name: CAL~FLO Slurry, 5%, 10%, 15%, 20%, 25%, 30%, 35%

Intended Use of the Product

Municipal and industrial water and wastewater treatment for pH, alkalinity, and calcium hardness adjustment. Sludge conditioning, compaction and volume reduction.

Name, Address, and Telephone of the Responsible Party

Manufacturer

CHEMTRADE LOGISTICS INC.

155 Gordon Baker Road

Suite 300

Toronto, Ontario M2H 3N5

For SDS Info: (416) 496-5856

www.chemtradelogistics.com

Emergency Telephone Number

Emergency Number :

Canada: CANUTEC +1-613-996-6666 / US: CHEMTREC +1-800-424-9300

INTERNATIONAL: +1-703-741-5970

Chemtrade Emergency Contact: (866) 416-4404

For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident, call CHEMTREC – Day or Night

SECTION 2: HAZARDS IDENTIFICATION

Classification of the Substance or Mixture

GHS Classification

Skin Irrit. 2	H315
Eye Dam. 1	H318
STOT SE 3	H335
Aquatic Acute 3	H402

Full text of hazard classes and H-statements : see section 16

Label Elements

GHS Labeling

Hazard Pictograms



Signal Word

: Danger

Hazard Statements

: H315 - Causes skin irritation
H318 - Causes serious eye damage
H335 - May cause respiratory irritation
H402 - Harmful to aquatic life

Precautionary Statements

: P261 - Avoid breathing mist, spray, vapors.
P264 - Wash hands, forearms and face thoroughly after handling.
P271 - Use only outdoors or in a well-ventilated area.
P273 - Avoid release to the environment.
P280 - Wear eye protection, protective clothing, protective gloves.
P302+P352 - IF ON SKIN: Wash with plenty of water.
P304+P340 - IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

CAL~FLO Slurry, 5%, 10%, 15%, 20%, 25%, 30%, 35%

Safety Data Sheet

According to U.S. Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations and according to Canada's Hazardous Products Regulation, February 11, 2015.

P310 - Immediately call a POISON CENTER, a doctor.
P312 - Call a poison center or doctor if you feel unwell.
P321 - Specific treatment (see Section 4 on this SDS).
P332+P313 - If skin irritation occurs: Get medical advice/attention.
P362 - Take off contaminated clothing and wash before reuse.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.
P501 - Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.

Other Hazards

Exposure may aggravate pre-existing eye, skin, or respiratory conditions.

Unknown acute toxicity

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Name	Product Identifier	%*	GHS Ingredient Classification
Water	(CAS-No.) 7732-18-5	65 - 95	Not classified
Calcium hydroxide	(CAS-No.) 1305-62-0	5 - 35	Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT SE 3, H335 Aquatic Acute 3, H402

Full text of H-phrases: see section 16

*Percentages are listed in weight by weight percentage (w/w%) for liquid and solid ingredients. Gas ingredients are listed in volume by volume percentage (v/v%).

SECTION 4: FIRST AID MEASURES

Description of First-aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

Inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER/doctor/physician if you feel unwell. Ventilate the area.

Skin Contact: Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Obtain medical attention if irritation develops or persists. Wash contaminated clothing before reuse.

Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing for at least 60 minutes. Immediately call a POISON CENTER or doctor/physician.

Ingestion: Do NOT induce vomiting. Rinse mouth. Immediately call a POISON CENTER or doctor/physician.

Most Important Symptoms and Effects Both Acute and Delayed

General: Causes serious eye damage. Causes skin irritation. May cause respiratory irritation. May be corrosive to the respiratory tract.

Inhalation: May cause respiratory irritation.

Skin Contact: Redness, pain, swelling, itching, burning, dryness, and dermatitis.

Eye Contact: Causes permanent damage to the cornea, iris, or conjunctiva. Can cause blindness.

Ingestion: Ingestion is likely to be harmful or have adverse effects. May cause irritation of the gastrointestinal tract.

Chronic Symptoms: None expected under normal conditions of use.

Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire.

Unsuitable Extinguishing Media: Do not use a heavy water stream. A heavy water stream may spread burning liquid.

CAL~FLO Slurry, 5%, 10%, 15%, 20%, 25%, 30%, 35%

Safety Data Sheet

According to U.S. Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations and according to Canada's Hazardous Products Regulation, February 11, 2015.

Special Hazards Arising From the Substance or Mixture

Fire Hazard: Product is not flammable.

Explosion Hazard: Product is not explosive.

Reactivity: Contact with metals may evolve flammable hydrogen gas.

Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers. Do not breathe fumes from fires or vapors from decomposition. Do not allow run-off from firefighting to enter drains or water sources.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: Oxides of calcium.

Reference to Other Sections

Refer to Section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Avoid all contact with skin, eyes, or clothing. Avoid breathing vapor, mist, or spray.

For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protective equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Evacuate unnecessary personnel. Stop leak if safe to do so. Ventilate area.

Environmental Precautions

Prevent entry to sewers and public waters. Contact competent authorities after a spill.

Methods and Materials for Containment and Cleaning Up

For Containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Cautiously neutralize spilled liquid. Absorb and/or contain spill with inert material, then place in suitable container. Dispose in a safe manner in accordance with local/national regulations. Contact competent authorities after a spill.

Reference to Other Sections

See Section 8, Exposure Controls and Personal Protection. Concerning disposal elimination after cleaning, see item 13.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work. Do not eat, drink or smoke when using this product. Wash hands and forearms thoroughly after handling.

Conditions for Safe Storage, Including Any Incompatibilities

Storage Conditions: Store in a dry, cool and well-ventilated place. Keep container closed when not in use. Keep/Store away from extremely high or low temperatures and incompatible materials. Store locked up.

Incompatible Materials: Strong acids. Strong oxidizers. Metals.

Specific End Use(s)

Municipal and industrial water and wastewater treatment for pH, alkalinity, and calcium hardness adjustment. Sludge conditioning, compaction and volume reduction.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

For substances listed in section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government.

Calcium hydroxide (1305-62-0)		
Mexico	OEL TWA (mg/m ³)	5 mg/m ³
USA ACGIH	ACGIH TWA (mg/m ³)	5 mg/m ³
USA OSHA	OSHA PEL (TWA) (mg/m ³)	15 mg/m ³ (total dust) 5 mg/m ³ (respirable fraction)

CAL~FLO Slurry, 5%, 10%, 15%, 20%, 25%, 30%, 35%

Safety Data Sheet

According to U.S. Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations and according to Canada's Hazardous Products Regulation, February 11, 2015.

USA NIOSH	NIOSH REL (TWA) (mg/m ³)	5 mg/m ³
Alberta	OEL TWA (mg/m ³)	5 mg/m ³
British Columbia	OEL TWA (mg/m ³)	5 mg/m ³
Manitoba	OEL TWA (mg/m ³)	5 mg/m ³
New Brunswick	OEL TWA (mg/m ³)	5 mg/m ³
Newfoundland & Labrador	OEL TWA (mg/m ³)	5 mg/m ³
Nova Scotia	OEL TWA (mg/m ³)	5 mg/m ³
Nunavut	OEL STEL (mg/m ³)	10 mg/m ³
Nunavut	OEL TWA (mg/m ³)	5 mg/m ³
Northwest Territories	OEL STEL (mg/m ³)	10 mg/m ³
Northwest Territories	OEL TWA (mg/m ³)	5 mg/m ³
Ontario	OEL TWA (mg/m ³)	5 mg/m ³
Prince Edward Island	OEL TWA (mg/m ³)	5 mg/m ³
Québec	VEMP (mg/m ³)	5 mg/m ³
Saskatchewan	OEL STEL (mg/m ³)	10 mg/m ³
Saskatchewan	OEL TWA (mg/m ³)	5 mg/m ³
Yukon	OEL STEL (mg/m ³)	10 mg/m ³
Yukon	OEL TWA (mg/m ³)	5 mg/m ³

Exposure Controls

Appropriate Engineering Controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed.

Personal Protective Equipment: Protective goggles. Gloves. Protective clothing. Insufficient ventilation: wear respiratory protection.



Materials for Protective Clothing: Chemically resistant materials and fabrics.

Hand Protection: Wear chemically resistant protective gloves.

Eye Protection: Chemical safety goggles.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn.

Consumer Exposure Controls: Do not eat, drink or smoke during use

Other Information: When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State	: Liquid
Appearance	: White
Odor	: Odorless
Odor Threshold	: Not available
pH	: 12.44
Evaporation Rate	: Not available
Melting Point	: Not applicable
Freezing Point	: 0° C (32° F)
Boiling Point	: Not available
Flash Point	: Not applicable
Auto-ignition Temperature	: Not applicable
Decomposition Temperature	: Not available
Flammability (solid, gas)	: Not applicable
Lower Flammable Limit	: Not applicable

CAL~FLO Slurry, 5%, 10%, 15%, 20%, 25%, 30%, 35%

Safety Data Sheet

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Upper Flammable Limit	: Not applicable
Vapor Pressure	: Not available
Relative Vapor Density at 20°C	: Not available
Relative Density	: Not available
Specific Gravity	: 1.03 - 1.24
Solubility	: Not available
Partition Coefficient: N-Octanol/Water	: Not available
Viscosity	: Not available

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Contact with metals may evolve flammable hydrogen gas.

Chemical Stability: Stable under normal conditions.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

Conditions to Avoid: Extremely high or low temperatures. Incompatible materials.

Incompatible Materials: Strong acids. Strong oxidizers. Metal.

Hazardous Decomposition Products: None expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Toxicological Effects - Product

Acute Toxicity (Oral): Not classified

Acute Toxicity (Dermal): Not classified

Acute Toxicity (Inhalation): Not classified

LD50 and LC50 Data: Not available

Skin Corrosion/Irritation: Causes skin irritation.

pH: 12.44

Eye Damage/Irritation: Causes serious eye damage.

pH: 12.44

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Carcinogenicity: Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): May cause respiratory irritation.

Aspiration Hazard: Not classified

Symptoms/Effects After Inhalation: May cause respiratory irritation.

Symptoms/Effects After Skin Contact: Redness, pain, swelling, itching, burning, dryness, and dermatitis.

Symptoms/Effects After Eye Contact: Causes permanent damage to the cornea, iris, or conjunctiva. Can cause blindness.

Symptoms/Effects After Ingestion: Ingestion is likely to be harmful or have adverse effects. May cause irritation of the gastrointestinal tract.

Chronic Symptoms: None expected under normal conditions of use.

Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

Calcium hydroxide (1305-62-0)	
LD50 Oral Rat	7340 mg/kg
Water (7732-18-5)	
LD50 Oral Rat	> 90000 mg/kg

SECTION 12: ECOLOGICAL INFORMATION

Toxicity

Ecology - General: Not classified.

Persistence and Degradability

CAL~FLO Slurry, 5%, 10%, 15%, 20%, 25%, 30%, 35%

CAL~FLO Slurry, 5%, 10%, 15%, 20%, 25%, 30%, 35%

Safety Data Sheet

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Persistence and Degradability	Not established.
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Bioaccumulative Potential

CAL~FLO Slurry, 5%, 10%, 15%, 20%, 25%, 30%, 35%	
Bioaccumulative Potential	Not established.
Calcium hydroxide (1305-62-0)	
BCF Fish 1	(no bioaccumulation)

Mobility in Soil Not available

Other Adverse Effects

Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

Sewage Disposal Recommendations: This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations.

SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

Not regulated for transport according to: US DOT, IMDG, IATA, and Canada's TDG

SECTION 15: REGULATORY INFORMATION

US Federal Regulations

Chemical Name (CAS No.)	CERCLA RQ	EPCRA 304 RQ	SARA 302 TPQ	SARA 313
Calcium hydroxide (1305-62-0)	Not applicable	Not applicable	Not applicable	No

SARA 311/312

CAL~FLO Slurry, 5%, 10%, 15%, 20%, 25%, 30%, 35%
Immediate (acute) health hazard

US TSCA Flags Not present

US State Regulations

California Proposition 65

Chemical Name (CAS No.)	Carcinogenicity	Developmental Toxicity	Female Reproductive Toxicity	Male Reproductive Toxicity
Calcium hydroxide (1305-62-0)	No	No	No	No

State Right-To-Know Lists

Calcium hydroxide (1305-62-0)
U.S. - Massachusetts - Right To Know List - Yes
U.S. - New Jersey - Right to Know Hazardous Substance List - Yes
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List - No
U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances - No
U.S. - Pennsylvania - RTK (Right to Know) List - Yes

Canadian Regulations

Calcium hydroxide (1305-62-0)
Listed on the Canadian DSL (Domestic Substances List)
Not listed on the Canadian NDSL (Non-Domestic Substances List)

International Inventories/Lists

Chemical Name (CAS No.)	Australia AICS	Turkey CICR	Korea ECL	EU EINECS	EU ELINCS	EU SVHC	EU NLP	Mexico INSQ
Calcium hydroxide (1305-62-0)	Yes	Yes	Yes	Yes	No	No	No	Yes

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Safety Data Sheet

According to U.S. Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations and according to Canada's Hazardous Products Regulation, February 11, 2015.

Chemical Name (CAS No.)	China IECSC	Japan ENCS	Japan ISHL	Japan PDSCL	Japan PRTR	Philippines PICCS	New Zealand NZIOC	US TSCA
Calcium hydroxide (1305-62-0)	Yes	Yes	No	No	No	Yes	Yes	Yes

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Date of Preparation or Latest Revision : 06/26/2018

Revision Summary

Section	Change	Date Changed
Header, 1, 12, 15	Language (product name) modified	06/26/2018
9	Data modified	06/26/2018

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200 and Canada's Hazardous Products Regulations (HPR).

GHS Full Text Phrases:

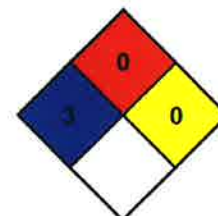
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H315	Causes skin irritation
H318	Causes serious eye damage
H335	May cause respiratory irritation

NFPA 704

NFPA Health Hazard : 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

NFPA Fire Hazard : 0 - Materials that will not burn under typical fire conditions.

NFPA Reactivity Hazard : 0 - Material that in themselves are normally stable, even under fire conditions.



HMIS Rating

Health : 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

Flammability : 0 Minimal Hazard

Physical : 0 Minimal Hazard

PPE See Section 8

Abbreviations and Acronyms

AICS - Australian Inventory of Chemical Substances
ACGIH - American Conference of Governmental Industrial Hygienists
AIHA - American Industrial Hygiene Association
ATE - Acute Toxicity Estimate
BCF - Bioconcentration factor
BEI - Biological Exposure Indices (BEI)
CAS No. - Chemical Abstracts Service number
CERCLA RQ - Comprehensive Environmental Response, Compensation, and Liability Act - Reportable Quantity
CICR - Turkish Inventory and Control of Chemicals
DOT - 49 CFR - US Department of Transportation - Code of Federal Regulations Title 49 - Transportation.
EC50 - Median effective concentration
ECL - Korea Existing Chemicals List
EINECS - European Inventory of Existing Commercial Chemical Substances
ELINCS - European List of Notified Chemical Substances
EmS - IMDG Emergency Schedule Fire & Spillage
ENCS - Japanese Existing and New Chemical Substances Inventory
EPA - Environmental Protection Agency
EPCRA 304 RQ - EPCRA 304 Extremely Hazardous Substance Emergency

LC50 - Median Lethal Concentration
LD50 - Median Lethal Dose
LOAEL - Lowest Observed Adverse Effect Level
LOEC - Lowest-observed-effect Concentration
Log Pow - Octanol/water Partition Coefficient
NFPA 704 - National Fire Protection Association - Standard System for the Identification of the Hazards of Materials for Emergency Response
NIOSH - National Institute for Occupational Safety and Health
NLP - Europe No Longer Polymers List
NOAEL - No-Observed Adverse Effect Level
NOEC - No-Observed Effect Concentration
NZIOC - New Zealand Inventory of Chemicals
OEL - Occupational Exposure Limits
OSHA - Occupational Safety and Health Administration
PEL - Permissible Exposure Limits
PICCS - Philippine Inventory of Chemicals and Chemical Substances
PDSCL - Japan Poisonous and Deleterious Substances Control Law
PPE - Personal Protective Equipment
PRTR - Japan Pollutant Release and Transfer Register
REL - Recommended Exposure Limit

CAL~FLO Slurry, 5%, 10%, 15%, 20%, 25%, 30%, 35%

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Planning and Community Right-to-Know-Act – Reportable Quantity
ERAP Index – Emergency Response Assistance Plan Quantity Limit
ErC50 - EC50 in Terms of Reduction Growth Rate
ERG code (IATA) - Emergency Response Drill Code as found in the International Civil Aviation Organization (ICAO)
ERG No. - Emergency Response Guide Number
HCCL - Hazard Communication Carcinogen List
HMIS – Hazardous Materials Information System
IARC - International Agency for Research on Cancer
IATA - International Air Transport Association – Dangerous Goods Regulations
IDLH - Immediately Dangerous to Life or Health
IECSC - Inventory of Existing Chemical Substances Produced or Imported in China
IMDG - International Maritime Dangerous Goods Code
INSQ - Mexican National Inventory of Chemical Substances
ISHL - Japan Industrial Safety and Health Law

SADT - Self Accelerating Decomposition Temperature
SARA - Superfund Amendments and Reauthorization Act
SARA 302 - Section 302, 40 CFR Part 355
SARA 311/312 - Sections 311 and 312, 40 CFR Part 370 Hazard Categories
SARA 313 - Section 313, 40 CFR Part 372
SRCL - Specifically Regulated Carcinogen List
STEL - Short Term Exposure Limit
SVHC – European Candidate List of Substance of Very High Concern
TDG – Transport Canada Transport of Dangerous Goods Regulations
TLM - Median Tolerance Limit
TLV - Threshold Limit Value
TPQ - Threshold Planning Quantity
TSCA – United States Toxic Substances Control Act
TWA - Time Weighted Average
WEEL - Workplace Environmental Exposure Levels

Handle product with due care and avoid unnecessary contact. This information is supplied under U.S. OSHA'S "Right to Know" (29 CFR 1910.1200) and Canada's WHMIS regulations. Although certain hazards are described herein, we cannot guarantee these are the only hazards that exist. The information contained herein is based on data available to us and is believed to be true and accurate but it is not offered as a product specification. No warranty, expressed or implied, regarding the accuracy of this data, the hazards connected with the use of the product, or the results to be obtained from the use thereof, is made and Chemtrade and its affiliates assume no responsibility. Chemtrade is a member of the CIAC (Chemistry Industry Association of Canada) and adheres to the codes and principles of Responsible Care™.



Chemtrade NA GHS SDS 2015



Carbon dioxide

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This SDS conforms to U.S. Code of Federal Regulations 29 CFR 1910.1200, Hazard Communication.

Issue date: 01/01/1980

Revision date: 12/14/2021 Supersedes: 05/14/2021

Version: 2.2

SECTION: 1. Product and company identification

1.1. Product identifier

Product form : Substance
Trade name : Carbon dioxide
Chemical name : Carbon dioxide
CAS-No. : 124-38-9
Formula : CO₂
Other means of identification : Medipure® Carbon Dioxide, Extendapak® EX-2, Refrigerant gas R744, carbonic anhydride, carbonic acid gas

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Industrial use; Use as directed.
Food applications.

1.3. Details of the supplier of the safety data sheet

Linde Inc.
10 Riverview Drive
Danbury, CT 06810-6268, USA
www.lindeus.com

Linde Inc. 1-844-44LINDE (1-844-445-4633)

1.4. Emergency telephone number

Emergency number : Onsite Emergency: 1-800-645-4633

CHEMTREC, 24hr/day 7days/week
— Within USA: 1-800-424-9300, Outside USA: 001-703-527-3887
(collect calls accepted, Contract 17729)

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

GHS US classification

Simple asphyxiant SIAS
Press. Gas (Liq.) H280

2.2. Label elements

GHS US labeling

Hazard pictograms (GHS US)



GHS04

Signal word (GHS US)

: Warning

Hazard statements (GHS US)

: H280 - CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED
CGA-HG01 - MAY CAUSE FROSTBITE.
CGA-HG03 - MAY INCREASE RESPIRATION AND HEART RATE.

Precautionary statements (GHS US)

: P202 - Do not handle until all safety precautions have been read and understood.
P261 - Avoid breathing gas
P262 - Do not get in eyes, on skin, or on clothing.
P271+P403 - Use and store only outdoors or in a well-ventilated place.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P304, P340, P313 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention.
P302, P336, P315 - IF ON SKIN: Thaw frosted parts with lukewarm water. Do not rub affected



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area.. Get immediate medical advice/attention.
CGA-PG05 - Use a back flow preventive device in the piping.
CGA-PG10 - Use only with equipment rated for cylinder pressure.
CGA-PG12 - Do not open valve until connected to equipment prepared for use.
CGA-PG06 - Close valve after each use and when empty.
CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52°C (125°F).
CGA-PG11 - Never put cylinders into unventilated areas of passenger vehicles.

2.3. Other hazards

Other hazards which do not result in classification

: Asphyxiant in high concentrations.

Contact with liquid may cause cold burns/frostbite.

WARNING: Concentration levels of carbon dioxide above about 1 percent are dangerous. Linde recommends continuous monitoring with alarms to indicate unsafe conditions before and during potential personnel exposure. Use appropriate monitoring devices to ensure a safe oxygen level (minimum of 19.5 percent) and a safe carbon dioxide level.

2.4. Unknown acute toxicity (GHS US)

No data available

SECTION 3: Composition/Information on ingredients

3.1. Substances

Name	Product identifier	%
Carbon dioxide (Main constituent)	(CAS-No.) 124-38-9	100

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation

: Remove to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration, with supplemental oxygen given by qualified personnel. If breathing is difficult, qualified personnel should give oxygen. Call a physician.

First-aid measures after skin contact

: The liquid may cause frostbite. For exposure to liquid, immediately warm frostbite area with warm water not to exceed 105°F (41°C). Water temperature should be tolerable to normal skin. Maintain skin warming for at least 15 minutes or until normal coloring and sensation have returned to the affected area. In case of massive exposure, remove clothing while showering with warm water. Seek medical evaluation and treatment as soon as possible.

First-aid measures after eye contact

: The liquid may cause frostbite. Immediately flush eyes thoroughly with water for at least 15 minutes. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly. Contact an ophthalmologist immediately.

First-aid measures after ingestion

: Ingestion is not considered a potential route of exposure.

4.2. Most important symptoms and effects, both acute and delayed

No additional information available

4.3. Indication of any immediate medical attention and special treatment needed

None.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

: Use extinguishing media appropriate for surrounding fire.

5.2. Special hazards arising from the substance or mixture

Explosion hazard

: Heat of fire can build pressure in container and cause it to rupture. Containers are equipped with a pressure relief device. (Exceptions may exist where authorized by DOT.) No part of the container should be subjected to a temperature higher than 125°F (52°C).

Reactivity

: No reactivity hazard other than the effects described in sub-sections below.



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5.3. Advice for firefighters

Firefighting instructions

: WARNING! Liquid and gas under pressure.

Evacuate all personnel from the danger area. Use self-contained breathing apparatus (SCBA) and protective clothing. Immediately cool containers with water from maximum distance. Stop flow of gas if safe to do so, while continuing cooling water spray. Remove ignition sources if safe to do so. Remove containers from area of fire if safe to do so. On-site fire brigades must comply with OSHA 29 CFR 1910.156 and applicable standards under 29 CFR 1910 Subpart L—Fire Protection.

Other information

: Containers are equipped with a pressure relief device. (Exceptions may exist where authorized by DOT [U.S.] or TC [Canada].)

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures

: WARNING! Liquid and gas under pressure.. Rapid release of gaseous carbon dioxide through a pressure relief device (PRD) or valve can result in the formation of dry ice, which is very cold and can cause frostbite..

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Try to stop release.

6.3. Methods and material for containment and cleaning up

For containment

: Prevent waste from contaminating the surrounding environment. Discard any product, residue, disposable container, or liner in an environmentally acceptable manner, in full compliance with federal, provincial, and local regulations. If necessary, call your local supplier for assistance.

6.4. Reference to other sections

See also sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling

: Avoid breathing gas

Do not get in eyes, on skin, or on clothing.

This gas is heavier than air and in an enclosed space tends to accumulate near the floor, displacing air and pushing it upward. This creates an oxygen-deficient atmosphere near the floor. Ventilate space before entry. Verify sufficient oxygen concentration.

WARNING: Concentration levels of carbon dioxide above about 1 percent are dangerous. Linde recommends continuous monitoring with alarms to indicate unsafe conditions before and during potential personnel exposure. Use appropriate monitoring devices to ensure a safe oxygen level (minimum of 19.5 percent) and a safe carbon dioxide level.

Wear leather safety gloves and safety shoes when handling cylinders. Protect cylinders from physical damage; do not drag, roll, slide or drop. While moving cylinder, always keep in place removable valve cover. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Never insert an object (e.g. wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Slowly open the valve. If the valve is hard to open, discontinue use and contact your supplier. Close the container valve after each use; keep closed even when empty. Never apply flame or localized heat directly to any part of the container. High temperatures may damage the container and could cause the pressure relief device to fail prematurely, venting the container contents. For other precautions in using this product, see section 16.



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7.2. Conditions for safe storage, including any incompatibilities

Storage conditions

- Store in a cool, well-ventilated place. Store and use with adequate ventilation. Store only where temperature will not exceed 125°F (52°C). Firmly secure containers upright to keep them from falling or being knocked over. Install valve protection cap, if provided, firmly in place by hand. Store full and empty containers separately. Use a first-in, first-out inventory system to prevent storing full containers for long periods.

This gas is heavier than air and in an enclosed space tends to accumulate near the floor, displacing air and pushing it upward. This creates an oxygen-deficient atmosphere near the floor. Ventilate space before entry. Verify sufficient oxygen concentration.

7.3. Specific end use(s)

None.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Carbon dioxide (124-38-9)

ACGIH	ACGIH OEL TWA [ppm]	5000 ppm
ACGIH	ACGIH OEL STEL [ppm]	30000 ppm
USA OSHA	OSHA PEL TWA [1]	9000 mg/m ³
USA OSHA	OSHA PEL TWA [2]	5000 ppm
USA IDLH	IDLH [ppm]	40000 ppm
ACGIH	Not established	
USA OSHA	Not established	

8.2. Exposure controls

Appropriate engineering controls

- Use a local exhaust system with sufficient flow velocity to maintain an adequate supply of air in the worker's breathing zone. Mechanical (general): General exhaust ventilation may be acceptable if it can maintain an adequate supply of air. **WARNING: Concentration levels of carbon dioxide above about 1 percent are dangerous.** Linde recommends continuous monitoring with alarms to indicate unsafe conditions before and during potential personnel exposure. Use appropriate monitoring devices to ensure a safe oxygen level (minimum of 19.5 percent) and a safe carbon dioxide level.

Materials for protective clothing

- Wear work gloves and metatarsal shoes for cylinder handling. Protective equipment where needed. Select in accordance with OSHA 29 CFR 1910.132, 1910.136, and 1910.138.

Eye protection

- Wear safety glasses when handling cylinders; vapor-proof goggles and a face shield during cylinder changeout or whenever contact with product is possible. Select eye protection in accordance with OSHA 29 CFR 1910.133.

Skin and body protection

- As needed for welding, wear hand, head, and body protection to help prevent injury from radiation and sparks. (See ANSI Z49.1.) At a minimum, this includes welder's gloves and protective goggles, and may include arm protectors, aprons, hats, and shoulder protection as well as substantial clothing.

Respiratory protection

- When workplace conditions warrant respirator use, follow a respiratory protection program that meets OSHA 29 CFR 1910.134, ANSI Z88.2, or MSHA 30 CFR 72.710 (where applicable). Use an air-supplied or air-purifying cartridge if the action level is exceeded. Ensure that the respirator has the appropriate protection factor for the exposure level. If cartridge type respirators are used, the cartridge must be appropriate for the chemical exposure. For emergencies or instances with unknown exposure levels, use a self-contained breathing apparatus (SCBA).

Thermal hazard protection

- Wear cold insulating gloves when transfilling or breaking transfer connections.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state

: Gas

Appearance

: Colorless gas.

Molecular mass

: 44 g/mol

Color

: Colorless.



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Odor	: Odorless.
Odor threshold	: No data available
pH	: 3.7 (carbonic acid)
Relative evaporation rate (butyl acetate=1)	: No data available
Relative evaporation rate (ether=1)	: Not applicable.
Melting point	: No data available
Freezing point	: No data available
Boiling point	: -78.5 °C (-109.3°F)
Flash point	: No data available
Critical temperature	: 31 °C (87.7°F)
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: 57.3 bar (831 psig)
Critical pressure	: 73.7 bar (1069 psig)
Relative vapor density at 20 °C	: 762
Relative density	: 1.22
Relative gas density	: 1.52
Solubility	: Water: 2000 mg/l Completely soluble.
Partition coefficient n-octanol/water (Log Pow)	: 0.83
Partition coefficient n-octanol/water (Log Kow)	: Not applicable.
Viscosity, kinematic	: Not applicable.
Viscosity, dynamic	: Not applicable.
Explosive properties	: Not applicable.
Oxidizing properties	: None.
Explosion limits	: No data available

9.2. Other information

Gas group	: Press. Gas (Liq.)
Additional information	: Gas/vapor heavier than air. May accumulate in confined spaces, particularly at or below ground level.

SECTION 10: Stability and reactivity

10.1. Reactivity

No reactivity hazard other than the effects described in sub-sections below.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

None.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

Alkali metals, Alkaline earth metals, Acetylide forming metals, Chromium, Titanium > 1022°F (550°C), Uranium (U) > 1382°F (750°C), Magnesium > 1427°F (775°C).

10.6. Hazardous decomposition products

Electrical discharges and high temperatures decompose carbon dioxide into carbon monoxide and oxygen. The welding process may generate hazardous fumes and gases.



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SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	: Not classified
Skin corrosion/irritation	: Not classified pH: 3.7 (carbonic acid)
Serious eye damage/irritation	: Not classified pH: 3.7 (carbonic acid)
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: No ecological damage caused by this product.
-------------------	--

12.2. Persistence and degradability

Carbon dioxide (124-38-9)	
Persistence and degradability	No ecological damage caused by this product.

12.3. Bioaccumulative potential

Carbon dioxide (124-38-9)	
BCF - Fish [1]	(no bioaccumulation)
Partition coefficient n-octanol/water (Log Pow)	0.83
Partition coefficient n-octanol/water (Log Kow)	Not applicable.
Bioaccumulative potential	No ecological damage caused by this product.

12.4. Mobility in soil

Carbon dioxide (124-38-9)	
Mobility in soil	No data available.
Ecology - soil	No ecological damage caused by this product.

12.5. Other adverse effects

Effect on ozone layer	: None.
Global warming potential [CO ₂ =1]	: 1
Effect on the global warming	: When discharged in large quantities may contribute to the greenhouse effect.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods	: May be vented to atmosphere in a well ventilated place. Discharge to atmosphere in large quantities should be avoided. Do not discharge into any place where its accumulation could be dangerous. Contact supplier if guidance is required.
Product/Packaging disposal recommendations	: Do not attempt to dispose of residual or unused quantities. Return container to supplier.

SECTION 14: Transport information

In accordance with DOT	
Transport document description (DOT)	: UN1013 Carbon dioxide, 2.2



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UN-No.(DOT) : UN1013
Proper Shipping Name (DOT) : Carbon dioxide
Class (DOT) : 2.2 - Class 2.2 - Non-flammable compressed gas 49 CFR 173.115
Hazard labels (DOT) : 2.2 - Non-flammable gas



Additional information

Emergency Response Guide (ERG) Number : 120
Other information : No supplementary information available.
Special transport precautions : Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers:
- Ensure there is adequate ventilation. - Ensure that containers are firmly secured. - Ensure cylinder valve is closed and not leaking. - Ensure valve outlet cap nut or plug (where provided) is correctly fitted. - Ensure valve protection device (where provided) is correctly fitted.

Transport by sea

UN-No. (IMDG) : 1013
Proper Shipping Name (IMDG) : CARBON DIOXIDE
Class (IMDG) : 2 - Gases
Division (IMDG) : 2.2 - Non-flammable, non-toxic gases
MFAG-No : 120

Air transport

UN-No. (IATA) : 1013
Proper Shipping Name (IATA) : Carbon dioxide
Class (IATA) : 2 - Gases
Civil Aeronautics Law : Gases under pressure/Gases nonflammable nontoxic under pressure

SECTION 15: Regulatory information

15.1. US Federal regulations

Carbon dioxide (124-38-9)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

Carbon dioxide (124-38-9)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

Carbon dioxide (124-38-9)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)



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15.2.2. National regulations

Carbon dioxide (124-38-9)

Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on KECL/KECI (Korean Existing Chemicals Inventory)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the Canadian IDL (Ingredient Disclosure List)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on the TCSI (Taiwan Chemical Substance Inventory)

15.3. US State regulations

Carbon dioxide(124-38-9)

U.S. - California - Proposition 65 - Carcinogens List	No
U.S. - California - Proposition 65 - Developmental Toxicity	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No
State or local regulations	U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List



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SECTION 16: Other information

Other information

When you mix two or more chemicals, you can create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an industrial hygienist or other trained person when you evaluate the end product. Before using any plastics, confirm their compatibility with this product.

Fumes and gases produced during welding and cutting processes can be dangerous to your health and may cause serious lung disease. **KEEP YOUR HEAD OUT OF FUMES. DO NOT BREATHE FUMES AND GASES.** Use enough ventilation, local exhaust, or both to keep fumes and gases from your breathing zone and the general area. Short-term overexposure to fumes may cause dizziness, nausea, and dryness or irritation of the nose, throat, and eyes; or may cause other similar discomfort. Contaminants in the air may add to the hazard of fumes and gases. One such contaminant, chlorinated hydrocarbon vapors from cleaning and degreasing activities, poses a special risk. **DO NOT USE ELECTRIC ARCS IN THE PRESENCE OF CHLORINATED HYDROCARBON VAPORS—HIGHLY TOXIC PHOSGENE MAY BE PRODUCED.** Metal coatings such as paint, plating, or galvanizing may generate harmful fumes when heated. Residues from cleaning materials may also be harmful. **AVOID ARC OPERATIONS ON PARTS WITH PHOSPHATE RESIDUES (ANTI-RUST, CLEANING PREPARATIONS)—HIGHLY TOXIC PHOSPHINE MAY BE PRODUCED.**

The opinions expressed herein are those of qualified experts within Linde Inc. We believe that the information contained herein is current as of the date of this Safety Data Sheet. Since the use of this information and the conditions of use are not within the control of Linde Inc, it is the user's obligation to determine the conditions of safe use of the product.

Linde SDSs are furnished on sale or delivery by Linde or the independent distributors and suppliers who package and sell our products. To obtain current SDSs for these products, contact your sales representative, local distributor, or supplier, or download from www.lindeus.com. If you have questions regarding Linde SDSs, would like the document number and date of the latest SDS, or would like the names of the Linde suppliers in your area, phone or write the Linde Call Center (Phone: 1-800-772-9247; Address: Linde Call Center, Linde Inc, P.O. Box 44, Tonawanda, NY 14151-0044).

Linde asks users of this product to study this SDS and become aware of the product hazards and safety information. To promote safe use of this product, a user should (1) notify employees, agents, and contractors of the information in this SDS and of any other known product hazards and safety information, (2) furnish this information to each purchaser of the product, and (3) ask each purchaser to notify its employees and customers of the product hazards and safety information.

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Revision date

12/14/2021

NFPA health hazard

2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

NFPA fire hazard

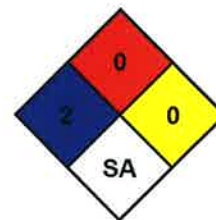
0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA instability

0 - Material that in themselves are normally stable, even under fire conditions.

NFPA specific hazard

SA - This denotes gases which are simple asphyxiants.



SDS US (GHS HazCom 2012) - Praxair OR Linde

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

CITY OF JACKSON, MISSISSIPPI

**Chokwe Antar Lumumba
Mayor**

**EQUAL BUSINESS OPPORTUNITY (EBO)
PLAN APPLICATION**

**Department of Planning and Development
Office of Economic Development**

CITY OF JACKSON, MISSISSIPPI
EQUAL BUSINESS OPPORTUNITY ORDINANCE

LEGAL NOTICE

The City of Jackson is committed to the principle of non-discrimination in public contracting. It is the policy of the City of Jackson to promote full and equal business opportunity for all persons doing business with the City. As a pre-condition to selection, every contractor, bidder or offeror shall submit a *completed and signed* Equal Business Opportunity (EBO) Plan Application with the bid submission, in accordance with the provisions of the City of Jackson's Equal Business Opportunity (EBO) Ordinance. Failure to comply with the City's ordinance shall disqualify a contractor, bidder or offeror from being awarded an eligible contract.

For more information on the City of Jackson's Equal Business Opportunity Program, please contact the Division of Equal Business Opportunity at 960-1856. Copies of the EBO Ordinance, EBO Plan Application, EBO Program, the MBE/FBE Directory and the MBE/FBE Certification Affidavit are available at 200 South President Street, Suite 223, Jackson, Mississippi.



(EBO FORM 6-1-09)

EQUAL BUSINESS OPPORTUNITY SPECIAL NOTICE TO BIDDERS

POLICY

The City of Jackson is committed to the principle of non-discrimination in public contracting. Therefore, the City of Jackson requests that prospective vendors and contractors carefully examine their method of selecting subcontractors and suppliers, to ensure that they are not either actively, or passively, discriminating against MBEs and FBEs. As a bidder seeking to do business with the City of Jackson, you are expected to adhere to a policy of non-discrimination, and to make the maximum practicable effort to ensure that historically underutilized firms are given an opportunity to participate in the performance of contracts financed in whole, or in part, with city funds.

DEFINITIONS

For purposes of this policy, the following definitions will apply:

- (1) **"African American Business Enterprise (AABE)"** shall mean a business that is an independent and continuing enterprise for profit, performing a commercially useful function and is owned and controlled by one or more African Americans, and certified as such by the Division of Business Development.
- (2) **"Asian American Business Enterprise (ABE)"** shall mean a business that is an independent and continuing enterprise for profit, performing a commercially useful function and is owned and controlled by one or more Asian Americans, and certified as such by the Division of Business Development.
- (3) **"Hispanic Business Enterprise (HBE)"** shall mean a business that is an independent and continuing enterprise for profit performing a commercially useful function and is owned and controlled by one or more Hispanics, as defined in section 127-4 (7), and certified as such by the Division of Business Development.
- (4) **"Minority Business Enterprise (MBE)"** shall mean a business which is an independent and continuing operation for profit, performing a commercially useful function, and is owned and controlled by one or more minority group members, as defined in Sections 1, 2 and 3, which group has been determined to have suffered discrimination requiring amelioration and is certified as such by the City.
- (5) **"Female Business Enterprise (FBE)"** shall mean a business that is an independent and continuing enterprise for profit, performing a commercially useful function and is owned and controlled by one or more females, and certified as such by the Division of Business Development.

OBLIGATION

The Contractor and any Subcontractor shall take all necessary and reasonable steps to ensure that MBEs and FBEs have a maximum opportunity to compete for and participate in the performance of any portion of the work included in this contract and shall not discriminate on the basis of race, color, national origin or sex. If it is determined that there is a significant underutilization of MBEs and FBEs, the Equal Business Opportunity Officer is empowered, pursuant to section 127-8 of the Equal Business Opportunity Ordinance, to conduct an investigation to determine the reasons for the underutilization.

GOALS

The goals for participation by MBEs and FBEs are established by the Equal Business Opportunity Ordinance of the City of Jackson. The Contractor shall exercise all necessary and reasonable steps to ensure that participation meets or exceeds the contract goals. The goals may be attained by subcontracting to, procuring materials from, and renting equipment from MBEs and FBEs. (See Subcontractor/Supplier Participation guidelines below.)

The Equal Business Opportunity participation goals are as follows:

PROCUREMENT CATEGORY	Asian (ABE)	African- American (AABE)	Hispanic (HBE)	Native American (NABE)	Female (FBE)
A/E & Professional Services	0.16	8.67	0.00	0.00	1.96
Construction	0.00	12.41	0.37	0.00	4.89
Goods & Non-Professional Services	0.04	6.78	0.02	0.00	3.03

Those portions of the contract that are proposed for MBEs and FBEs in the response to this bid shall be listed on the attached Equal Business Opportunity Plan Application.

For specific information about the Equal Business Opportunity Plan, please contact the Office of Economic Development at (601) 960-1638.

Contractors may employ AABEs, HBES, ABEs or FBEs to meet the applicable project goals through various methods, as follows:

A. Subcontractor Participation

- (i) Where a prime contractor utilizes one or more subcontractors to satisfy its equal business opportunity commitment, the prime contractor may count toward its EBO Plan only expenditures to MBE (AABE, HBE, or ABE) or FBE contractors that perform a commercially useful function in the work of the contract.
- (ii) An MBE or FBE subcontractor is considered to perform a commercially useful function when it is responsible for execution of a distinct element of the work of a contract and carries out its responsibilities by actually performing, managing and supervising the work involved. In determining whether an MBE or FBE subcontractor, is performing a commercially useful function, factors, including but not limited to the following, will be considered:
 - (a) The amount of work subcontracted;
 - (b) The type of prime contract;
 - (c) Whether the business has the skill and expertise to perform work for which it is being/has been certified;
 - (d) Whether the business actually performs, manages and supervises the work for which it is being/has been certified; and
 - (e) Whether the business purchases goods and/or services from a non-minority/women*s business enterprise and simply resells goods to the city, city contractor, or other person doing business with the city for the purpose of allowing those goods to be counted towards fulfillment of minority/women*s business enterprise utilization goals.
 - (f) Standard industry practices.
- (iii) Consistent with standard industry practices, an MBE or FBE subcontractor may enter into second tier subcontracts. If an MBE or FBE subcontractor subcontracts a significantly greater portion of the work of its subcontract to a non-minority, non-female owned firm than would be expected on the basis of standard industry practices, it shall be presumed that the MBE or FBE subcontractor is not performing a commercially useful function.

B. Suppliers Participation

Where a prime contractor utilizes one or more suppliers to satisfy its EBO commitment, in whole or in part, the MBE or FBE supplier participation may be credited towards the applicable goal as follows:

- (i) 100 percent of the contract amount for MBE or FBE suppliers who manufacture the goods supplied.
- (ii) 100 percent of the contract amount for MBE and FBE suppliers who are wholesalers warehousing the goods supplied or who are manufacturers* representatives, provided that only 25 percent of the applicable MBE or FBE goal may be attained by non-manufacturing supplier contracts to MBEs or FBEs.
- (iii) For those contracts where an extraordinarily large proportion of the contract price is for equipment or supplies, a lower project goal may be set than otherwise would be required, or the 25 percent limit for suppliers may be increased, or a combination of these two methods may be utilized.

C. Joint Ventures and Mentor-Protégé Programs

- (i) The Division of Equal Business Opportunity shall encourage, where economically feasible, establishment of joint ventures and mentor protégé programs to ensure prime contracting opportunities for African American, Hispanic, Asian American, Native American and Female Business Enterprises on all eligible projects over \$10,000,000.00. Even if the prime itself is a MBE, joint venture between prime contractors and MBEs shall be required on all projects exceeding ten million dollars (\$10,000,000.00).
- (ii) Where a contractor engages in a joint venture to satisfy its Equal Business Opportunity Commitment, the Equal Business Opportunity Officer shall review and approve all contractual agreements regarding:
 - (a) The initial capital investment of each venture partner;
 - (b) The proportional allocation of profits and losses to each venture partner;
 - (c) The sharing of the right to control the ownership and management of the joint venture;
 - (d) Actual participation of the venture partners in the performance of the contract;
 - (e) The method of and responsibility for accounting;
 - (f) The methods by which disputes are resolved; and
 - (g) Other pertinent factors of the joint venture.

On the basis of these factors, the Equal Business Opportunity Officer shall determine the degree of AABE, HBE, ABE, or FBE participation resulting from the joint venture that may be credited towards the applicable EBO goals of the project.

The bidder or offeror shall provide the Equal Business Opportunity Officer access to review all records pertaining to joint venture agreements before and after the award of a contract reasonably necessary to assess compliance with this policy.

The Equal Business Opportunity Program also encourages Mentor-Protégé programs to assist African American, Hispanic, Asian American, and Female business enterprises in financing, bonding, construction management and technical assistance. Mentor-Protégé agreements will be reviewed by the Equal Business Opportunity Officer for final approval of the following terms of each agreement:

- (a) Type of technical assistance to be provided by mentor;
- (b) Rights and responsibilities of each mentor and protégé contracting activity;
- (c) The specific duration of the agreement;
- (d) The amount of participation by the protégé that may be credited toward the applicable EBO goal.

EQUAL BUSINESS OPPORTUNITY PLAN

In accordance with Section 127-13(1) of the City of Jackson's Equal Opportunity Ordinance, each contractor, bidder or offeror shall submit a completed and signed Equal Business Opportunity Plan with bid submission. Such plan should be titled "Equal Business Opportunity Plan (EBO Plan)" and should include the following:

- A. Names, addresses and contact persons of each African American Business Enterprise, Asian Business Enterprise, Hispanic Business Enterprise, and Female Business Enterprise to be used in the contract.
- B. The type of work or service each African American Business Enterprise, Asian Business Enterprise, Hispanic Business Enterprise, and Female Business Enterprise will perform.
- C. The dollar value of the work or service to be performed by each African American Business Enterprise, Asian Business Enterprise, Hispanic Business Enterprise, and Female Business Enterprise.
- D. Scope of the work to be performed by each African American Business Enterprise, Asian Business Enterprise, Hispanic Business Enterprise, and Female Business Enterprise.

Waiver

If the EBO Plan does not meet the project goals, the bidder or offeror must seek a partial or total waiver of the project goals. The application for waiver of all or part of the project goals must include full documentary evidence of the bidder*s or offeror*s good faith efforts (*see EBO Plan Application*) to meet the project goals and why the request for waiver should be granted. The application shall be in writing and submitted as a part of the bid or offer. It should include a narrative, affidavits and/or exhibits which verify the actions taken by the bidder or offeror to meet the goals.

Replacement

If a MBE/FBE Subcontractor cannot perform satisfactorily, the Contractor shall take all necessary reasonable steps to replace the Subcontractor with another MBE/FBE Contractor. All MBE/FBE replacements must be approved by the EBO Review Committee and the Department. (*See EBO Plan Application*)

To demonstrate necessary reasonable efforts to replace any Subcontractor that is unable to perform successfully, the Contractor must document steps taken to subcontract with another MBE/FBE Contractor.

CITY OF JACKSON, MISSISSIPPI
EQUAL BUSINESS OPPORTUNITY PLAN
APPLICATION

I. Company Name: _____

Address: _____

City: _____ State: _____ ZIP Code: _____

Telephone: (_____) _____

E-mail: _____

II. Bid Name and Number: _____

III. PROPOSED MINORITY AND/OR FEMALE SUBCONTRACTORS: **(SEE ATTACHMENTS)**

If a prime contractor utilizes one or more suppliers to satisfy its EBO commitment, all MBE or FBE supplier participation will be credited in accordance to Section 127-13-1(B) of the EBO Ordinance.

IV. Total Bid Amount: \$ _____

V. WAIVER REQUESTED ...

☐

*(If you fail to meet either or all of the EBO Participation Goals, check this box and follow the directions below to provide the required ***WAIVER STATEMENT***. The "Waiver Statement" should be submitted on company letterhead to the EBO Officer.)*

*** The bidder/offeror shall provide the following as evidence of its good faith efforts and will be evaluated on the same:**

- (a) Copies of written notification to MBEs and FBEs soliciting their participation as a subcontractor.
- (b) Evidence of efforts made to divide the work into economically feasible units in order to increase the likelihood of meeting the EBO participation goals.
- (c) Evidence of efforts made to negotiate with MBEs and/or FBEs, including, at a minimum:
 - 1. The names, addresses, and telephone numbers of the MBE and FBEs who were contacted.
 - 2. A description of the information provided to MBEs and FBEs regarding the plans and specifications for portions of the work to be performed.
 - 3. A statement of reasons why additional agreements with MBEs and FBEs, if needed to meet the stated goals, were not reached.
 - 4. Evidence of efforts made to assist the MBEs and FBEs contacted who need assistance in obtaining bonding and insurance which the bidder or offeror requires.

5. For each MBE and FBE contacted which the bidder or offeror considered to be not qualified, include a written statement of the reasons for the bidder's or offeror's conclusion.
6. Written quotes solicited from all MBEs and FBEs seeking subcontract work with Prime Contractors at the time of the bidding.
7. A statement with supporting documentation and affidavits indicating whether the offeror has used MBEs and/or FBEs as joint venture partners or subcontractors in past or present private sector contracts in Jackson.

**If you are unable to locate an MBE/FBE, please contact the Business Development Division at (601) 960-1055.*

VI. Minority and Female Business Enterprise Actual Participation for this Bid/Offer/Proposal:

(Please list your MBE and FBE Project Participation percentages (%) in the Table below.)*

PROCUREMENT CATEGORY	Asian (ABE)	African- American (AABE)	Hispanic (HBE)	Native American (NABE)	Female (FBE)
A/E & Professional Services					
Construction					
Goods & Non-Professional Services					

VII. REPLACEMENT OF MBE/FBE

If an MBE or FBE is not performing satisfactorily, it is the responsibility of the Prime Contractor to notify the EBO Office immediately both in writing and by phone. All MBE/FBE replacements must be approved by the Equal Business Opportunity Review Committee (EBORC). If these steps are not taken this will result in penalties as outlined in Section 127-19 of the EBO Ordinance.

VIII. CERTIFICATION

I certify, under penalties of perjury, that the information contained in this Equal Business Opportunity Plan Application is true and accurate to the best of my knowledge, and that my company fully intends to utilize all MBEs and FBEs listed if awarded the proposed project and/or service and abide by all EBO guidelines.

Authorized Signature and Title

Date

PRINT "AUTHORIZED" NAME HERE: _____

EQUAL BUSINESS OPPORTUNITY PLAN APPLICATION -- ATTACHMENT

Proposed Minority/Female Business Enterprise Firms

Company Name: _____ Type Trade/Business: _____

Address: _____

Type Minority Business (MBE/FBE):

City, State, ZIP: _____

_____ Female (FBE)

_____ African-American (AABE)

_____ Asian (ABE)

Contact Person: _____

_____ Hispanic (HBE)

_____ Native American (NABE)

Telephone Number: _____

Type Minority Business (MBE/FBE) Involvement:

_____ Subcontractor

_____ Supplier

_____ Joint Venture

_____ Mentor-Protégé

Type Work or Service to be Performed: _____

Scope of Work to be Performed: _____

Dollar Value of the Work to Be Performed by the Minority Business (MBE and/or FBE): \$ _____

Percentage of MBE and/or FBE Participation: _____ %

Company Name: _____ Type Trade/Business: _____

Address: _____

Type Minority Business (MBE/FBE):

City, State, ZIP: _____

_____ Female (FBE)

_____ African-American (AABE)

_____ Asian (ABE)

Contact Person: _____

_____ Hispanic (HBE)

_____ Native American (NABE)

Telephone Number: _____

Type Minority Business (MBE/FBE) Involvement:

_____ Subcontractor

_____ Supplier

_____ Joint Venture

_____ Mentor-Protégé

Type Work or Service to be Performed: _____

Scope of Work to be Performed: _____

Dollar Value of the Work to Be Performed by the Minority Business (MBE and/or FBE): \$ _____

Percentage of MBE and/or FBE Participation: _____ %

Company Name: _____ Type Trade/Business: _____

Address: _____

Type Minority Business (MBE/FBE):

City, State, ZIP: _____

_____ Female (FBE)
_____ African-American (AABE)
_____ Asian (ABE)
_____ Hispanic (HBE)
_____ Native American (NABE)

Contact Person: _____

Telephone Number: _____

Type Minority Business (MBE/FBE) Involvement:

_____ Subcontractor _____ Supplier
_____ Joint Venture _____ Mentor-Protégé

Type Work or Service to be Performed: _____

Scope of Work to be Performed: _____

Dollar Value of the Work to Be Performed by the Minority Business (MBE and/or FBE): \$ _____

Percentage of MBE and/or FBE Participation: _____ %

Company Name: _____ Type Trade/Business: _____

Address: _____

Type Minority Business (MBE/FBE):

City, State, ZIP: _____

_____ Female (FBE)
_____ African-American (AABE)
_____ Asian (ABE)
_____ Hispanic (HBE)
_____ Native American (NABE)

Contact Person: _____

Telephone Number: _____

Type Minority Business (MBE/FBE) Involvement:

_____ Subcontractor _____ Supplier
_____ Joint Venture _____ Mentor-Protégé

Type Work or Service to be Performed: _____

Scope of Work to be Performed: _____

Dollar Value of the Work to Be Performed by the Minority Business (MBE and/or FBE): \$ _____

Percentage of MBE and/or FBE Participation: _____ %